



ENTERED

OIPE

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/989,497

DATE: 03/15/2002

TIME: 14:19:56

Input Set : A:\78328735.app

Output Set: N:\CRF3\03152002\I989497.raw

3 <110> APPLICANT: YAO, YONG  
 4 XU, HONG  
 6 <120> TITLE OF INVENTION: G-ALPHA-Q PROTEIN VARIANTS AND THEIR USE IN THE  
 7 ANALYSIS AND DISCOVERY OF AGONISTS AND ANTAGONISTS OF  
 8 CHEMOSENSORY RECEPTORS  
 10 <130> FILE REFERENCE: 078003-0280735  
 12 <140> CURRENT APPLICATION NUMBER: 09/989,497  
 13 <141> CURRENT FILING DATE: 2001-11-21  
 15 <150> PRIOR APPLICATION NUMBER: 09/984,292  
 16 <151> PRIOR FILING DATE: 2001-10-29  
 18 <150> PRIOR APPLICATION NUMBER: 60/243,770  
 19 <151> PRIOR FILING DATE: 2000-10-30  
 21 <160> NUMBER OF SEQ ID NOS: 42  
 23 <170> SOFTWARE: PatentIn Ver. 2.1  
 25 <210> SEQ ID NO: 1  
 26 <211> LENGTH: 359  
 27 <212> TYPE: PRT  
 28 <213> ORGANISM: Mus sp.  
 30 <400> SEQUENCE: 1  
 31 Met Thr Leu Glu Ser Ile Met Ala Cys Cys Leu Ser Glu Glu Ala Lys  
 32 1 5 10 15  
 34 Glu Ala Arg Arg Ile Asn Asp Glu Ile Glu Arg Gln Leu Arg Arg Asp  
 35 20 25 30  
 37 Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu Leu Gly Thr Gly  
 38 35 40 45  
 40 Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile Ile His Gly  
 41 50 55 60  
 43 Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr  
 44 65 70 75 80  
 46 Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile Arg Ala Met Asp Thr  
 47 85 90 95  
 49 Leu Lys Ile Pro Tyr Lys Tyr Glu His Asn Lys Ala His Ala Gln Leu  
 50 100 105 110  
 52 Val Arg Glu Val Asp Val Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr  
 53 115 120 125  
 55 Val Asp Ala Ile Lys Ser Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys  
 56 130 135 140  
 58 Tyr Asp Arg Arg Arg Glu Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr  
 59 145 150 155 160  
 61 Leu Asn Asp Leu Asp Arg Val Ala Asp Pro Ser Tyr Leu Pro Thr Gln  
 62 165 170 175  
 64 Gln Asp Val Leu Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr  
 65 180 185 190

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/989,497

DATE: 03/15/2002

TIME: 14:19:56

Input Set : A:\78328735.app

Output Set: N:\CRF3\03152002\I989497.raw

```

67 Pro Phe Asp Leu Gln Ser Val Ile Phe Arg Met Val Asp Val Gly Gly
68      195      200      205
70 Gln Arg Ser Glu Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr
71      210      215      220
73 Ser Ile Met Phe Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val
74 225      230      235      240
76 Glu Ser Asp Asn Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg
77      245      250      255
79 Thr Ile Ile Thr Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe
80      260      265      270
82 Leu Asn Lys Lys Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His Leu
83      275      280      285
85 Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala
86      290      295      300
88 Ala Arg Glu Phe Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ser
89 305      310      315      320
91 Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn
92      325      330      335
94 Ile Arg Phe Val Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Leu Asn
95      340      345      350
97 Leu Lys Glu Tyr Asn Leu Val
98      355
101 <210> SEQ ID NO: 2
102 <211> LENGTH: 353
103 <212> TYPE: PRT
104 <213> ORGANISM: Mus sp.
106 <400> SEQUENCE: 2
107 Met Ala Cys Cys Leu Ser Glu Glu Ala Lys Glu Ala Arg Arg Ile Asn
108 1      5      10      15
110 Asp Glu Ile Glu Arg Gln Leu Arg Arg Asp Lys Arg Asp Ala Arg Arg
111      20      25      30
113 Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
114      35      40      45
116 Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
117      50      55      60
119 Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr Gln Asn Ile Phe Thr Ala
120 65      70      75      80
122 Met Gln Ala Met Ile Arg Ala Met Asp Thr Leu Lys Ile Pro Tyr Lys
123      85      90      95
125 Tyr Glu His Asn Lys Ala His Ala Gln Leu Val Arg Glu Val Asp Val
126      100      105      110
128 Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr Val Asp Ala Ile Lys Ser
129      115      120      125
131 Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
132      130      135      140
134 Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr Leu Asn Asp Leu Asp Arg
135 145      150      155      160
137 Val Ala Asp Pro Ser Tyr Leu Pro Thr Gln Gln Asp Val Leu Arg Val
138      165      170      175

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/989,497

DATE: 03/15/2002

TIME: 14:19:56

Input Set : A:\78328735.app

Output Set: N:\CRF3\03152002\I989497.raw

```

140 Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Gln Ser
141           180           185           190
143 Val Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
144           195           200           205
146 Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe Leu Val
147           210           215           220
149 Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Ser Asp Asn Glu Asn
150 225           230           235           240
152 Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr Pro
153           245           250           255
155 Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
156           260           265           270
158 Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe Pro Glu
159           275           280           285
161 Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala Ala Arg Glu Phe Ile Leu
162           290           295           300
164 Lys Met Phe Val Asp Leu Asn Pro Asp Ser Asp Lys Ile Ile Tyr Ser
165 305           310           315           320
167 His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
168           325           330           335
170 Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Tyr Asn Leu
171           340           345           350
173 Val
177 <210> SEQ ID NO: 3
178 <211> LENGTH: 359
179 <212> TYPE: PRT
180 <213> ORGANISM: Mus sp.
182 <400> SEQUENCE: 3
183 Met Thr Leu Glu Ser Ile Met Ala Cys Cys Leu Ser Glu Glu Ala Lys
184 1           5           10           15
186 Glu Ala Arg Arg Ile Asn Asp Glu Ile Glu Arg Gln Leu Arg Arg Asp
187           20           25           30
189 Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly
190           35           40           45
192 Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile Ile His Gly
193           50           55           60
195 Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr
196 65           70           75           80
198 Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile Arg Ala Met Asp Thr
199           85           90           95
201 Leu Lys Ile Pro Tyr Lys Tyr Glu His Asn Lys Ala His Ala Gln Leu
202           100          105          110
204 Val Arg Glu Val Asp Val Glu Lys Val Ser Ala Phe Asp Val Pro Asp
205           115          120          125
207 Tyr Ala Ala Ile Lys Ser Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys
208           130          135          140
210 Tyr Asp Arg Arg Arg Glu Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr
211 145          150          155          160
213 Leu Asn Asp Leu Asp Arg Val Ala Asp Pro Ser Tyr Leu Pro Thr Gln

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/989,497

DATE: 03/15/2002

TIME: 14:19:56

Input Set : A:\78328735.app

Output Set: N:\CRF3\03152002\I989497.raw

```

214          165          170          175
216 Gln Asp Val Leu Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr
217          180          185          190
219 Pro Phe Asp Leu Gln Ser Val Ile Phe Arg Met Val Asp Val Gly Gly
220          195          200          205
222 Gln Arg Ser Glu Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr
223          210          215          220
225 Ser Ile Met Phe Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val
226 225          230          235          240
228 Glu Ser Asp Asn Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg
229          245          250          255
231 Thr Ile Ile Thr Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe
232          260          265          270
234 Leu Asn Lys Lys Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His Leu
235          275          280          285
237 Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala
238          290          295          300
240 Ala Arg Glu Phe Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ser
241 305          310          315          320
243 Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn
244          325          330          335
246 Ile Arg Phe Val Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Leu Asn
247          340          345          350
249 Leu Lys Glu Tyr Asn Leu Val
250          355
253 <210> SEQ ID NO: 4
254 <211> LENGTH: 353
255 <212> TYPE: PRT
256 <213> ORGANISM: Mus sp.
258 <400> SEQUENCE: 4
259 Met Ala Cys Cys Leu Ser Glu Glu Ala Lys Glu Ala Arg Arg Ile Asn
260 1          5          10          15
262 Asp Glu Ile Glu Arg Gln Leu Arg Arg Asp Lys Arg Asp Ala Arg Arg
263          20          25          30
265 Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
266          35          40          45
268 Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
269          50          55          60
271 Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr Gln Asn Ile Phe Thr Ala
272 65          70          75          80
274 Met Gln Ala Met Ile Arg Ala Met Asp Thr Leu Lys Ile Pro Tyr Lys
275          85          90          95
277 Tyr Glu His Asn Lys Ala His Ala Gln Leu Val Arg Glu Val Asp Val
278          100          105          110
280 Glu Lys Val Ser Ala Phe Asp Val Pro Asp Tyr Ala Ala Ile Lys Ser
281          115          120          125
283 Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
284          130          135          140
286 Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr Leu Asn Asp Leu Asp Arg

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/989,497

DATE: 03/15/2002

TIME: 14:19:56

Input Set : A:\78328735.app

Output Set: N:\CRF3\03152002\I989497.raw

```

287 145          150          155          160
289 Val Ala Asp Pro Ser Tyr Leu Pro Thr Gln Gln Asp Val Leu Arg Val
290          165          170          175
292 Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Gln Ser
293          180          185          190
295 Val Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
296          195          200          205
298 Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe Leu Val
299          210          215          220
301 Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Ser Asp Asn Glu Asn
302 225          230          235          240
304 Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr Pro
305          245          250          255
307 Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
308          260          265          270
310 Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe Pro Glu
311          275          280          285
313 Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala Ala Arg Glu Phe Ile Leu
314          290          295          300
316 Lys Met Phe Val Asp Leu Asn Pro Asp Ser Asp Lys Ile Ile Tyr Ser
317 305          310          315          320
319 His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
320          325          330          335
322 Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Tyr Asn Leu
323          340          345          350
325 Val
329 <210> SEQ ID NO: 5
330 <211> LENGTH: 353
331 <212> TYPE: PRT
332 <213> ORGANISM: Mus sp.
334 <400> SEQUENCE: 5
335 Met Ala Cys Cys Leu Ser Glu Glu Ala Lys Glu Ala Arg Arg Ile Asn
336 1          5          10          15
338 Asp Glu Ile Glu Arg Gln Leu Arg Arg Asp Lys Arg Asp Ala Arg Arg
339          20          25          30
341 Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
342          35          40          45
344 Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
345          50          55          60
347 Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr Gln Asn Ile Phe Thr Ala
348 65          70          75          80
350 Met Gln Ala Met Ile Arg Ala Met Asp Thr Leu Lys Ile Pro Tyr Lys
351          85          90          95
353 Tyr Glu His Asn Lys Ala His Ala Gln Leu Val Arg Glu Val Asp Val
354          100          105          110
356 Glu Lys Val Ser Ala Phe Asp Val Pro Asp Tyr Ala Ala Ile Lys Ser
357          115          120          125
359 Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
360          130          135          140

```

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/989,497

DATE: 03/15/2002

TIME: 14:19:57

Input Set : A:\78328735.app

Output Set: N:\CRF3\03152002\I989497.raw